RAM-1
Peripheral Board
Technical Manual

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WARRANTY:

BiPOM Electronics warrants RAM-1 for a period of 1 year. If the board becomes defective during this period, BiPOM will at its option, replace or repair the board. This warranty is voided if the product is subjected to physical abuse or operated outside stated electrical limits. BiPOM Electronics will not be responsible for damage to any external devices connected to RAM-1. BiPOM Electronics disclaims all warranties express or implied warranties of merchantability and fitness for a particular purpose. In no event shall BiPOM Electronics be liable for any indirect, special, incidental or consequential damages in connection with or arising from the use of this product. BiPOM Electronics' liability is limited to the purchase price of this product.

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1. Overview

RAM-1 is a peripheral memory board for the MINI-MAX and PRO-MAX series of micro-controller systems.

RAM-1 has 512Kbyte static RAM and 512Kbyte flash memory with an access via 8-bit address/data multiplexed bus.

RAM-1 is powered from 5 Volts DC of external stabilized power source through the 14-pin input connector.

Software examples for RAM-1 Peripheral board are available from http://www.bipom.com/

2. Specifications

RAM-1 board has the following configuration:

- 512Kbyte static RAM (TC554001AFT-70L with 70ns access time)
- 512Kbyte Flash (AT49F040A-55T with 55ns read access time.
  Typical number of program and erase cycles is in excess of 10,000 cycles.)
- Address auto-increment/decrement mode is available using counters as an address register.
- The board address selector supports up to 4 boards connected to the host micro-controller simultaneously
- 14-pin connector for control signals and 10-pin connector for address/data bus to connect with a host micro-controller board (http://www.bipom.com/boards.php)
- Single operating voltage: 5 VDC at 50mA current
- Dimensions are 2.35 X 2.40 inches (5.97 X 6.10 centimeters).
- Mounting holes of 0.138 inches (3.5 millimeters) are on four corners.
- 0° - 70° C operating, -40° - +85° C storage temperature range.

3. Functional Blocks

Figure 1 shows the block diagram of the RAM-1 board

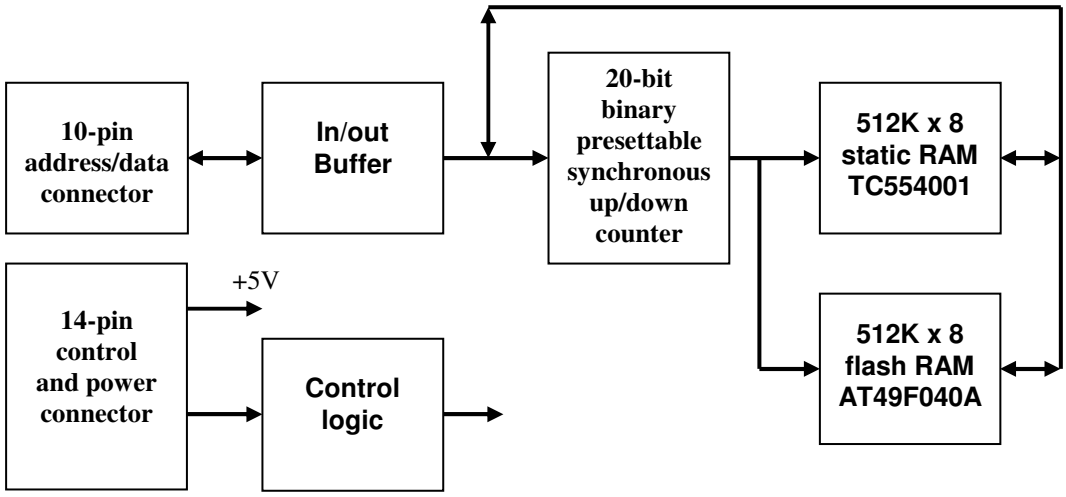


Figure 1

Address/data connector

This connector is used as 8-bit bidirectional address/data port for interfacing with a host micro-controller board. On MINI-MAX series boards, this is typically the keypad connector.

Table 1 shows the pin assignments for the connector.

Connector J1

Name	*Signal*	*Pin*
-	-	10
-	-	9
P2.7	AD7	8
P2.6	AD6	7
P2.5	AD5	6
P2.4	AD4	5
P2.3	AD3	4
P2.2	AD2	3
P2.1	AD1	2
P2.0	AD0	1

Table 1

Control and power connector

The 7 control pins and 5 Volt power supply pins are available on the 14-pin connector (J2) for interfacing to micro-controller boards. RAM-1 can be connected to micro-controller board either as a piggyback daughter-board using standoffs or can be placed away from the micro-controller board using ribbon cables. Table 2 shows the pin assignments for the connector.

Connector J2

Signal	***Pin***	***Pin***	***Signal***
P0.7	14	13	P0.6
P0.5	12	11	P0.4
-	10	9	-
-	8	7	-
P0.2	6	5	P0.1
P0.0	4	3	-
VCC (+5V)	2	1	GND

Table 2

Power Supply

External power supply should be able to supply 5 Volts DC at a minimum of 50mA current

WARNING: Correct polarity should be observed when applying external DC supply to the power connector.

Expansion connector

20-pin expansion connector has no any internal connections to the RAM-1 circuitry.
The connector is used only as a translator of signals for other peripheral boards.

The address selector

The address selector permits to use 4 RAM-1boards with a host MCU simultaneously

Only one of four jumpers should be plugged to connector J4 to get the RAM-1 board enabled.

4. Application Notes

RAM-1 board should be stacked on top of MINI-MAX board using stand-offs. Figure 2 shows how RAM-1 can be connected to a Micro-Computer board in a stacked fashion.

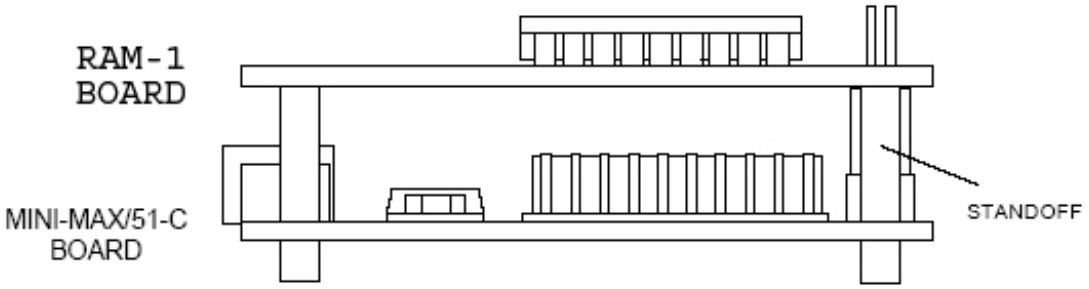


Figure 2

More details about BiPOM Peripheral boards are available from the link below:
http://www.bipom.com/periph_boards.php

8051/52, BASCOM51 and SDCC (Small Device C Compiler) development systems provide examples for RAM-1.
Please download any of these development systems from:
http://www.bipom.com/software.php

5. Board Layout

Layout of RAM-1 board is shown below:

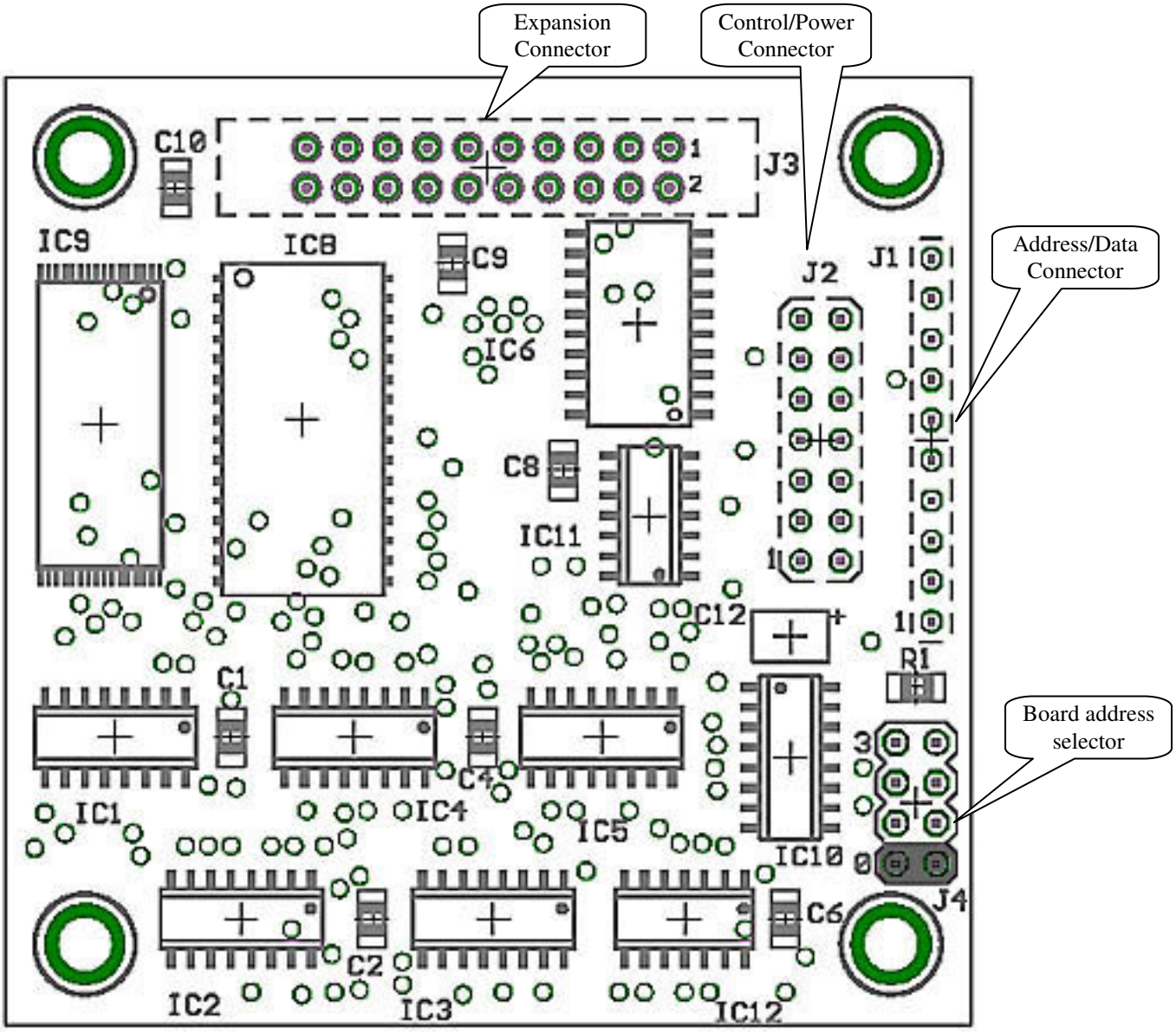
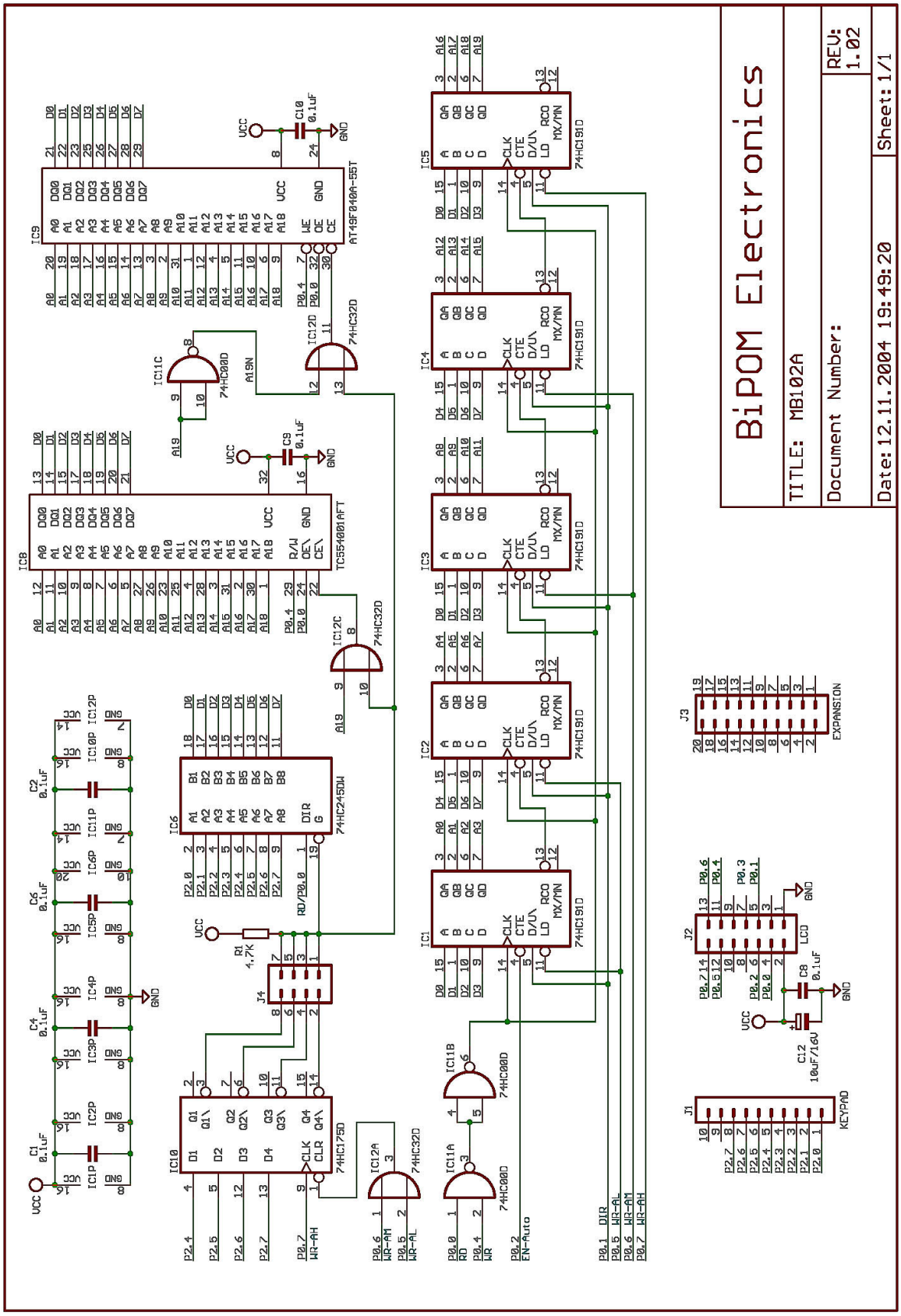


Figure 3

6. Schematics